Docket No.: 44084-498 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	:	
Kimiyuki ITO, et al.	:	
Serial No.: 09/955,030	:	Group Art Unit: 1756
Filed: September 19, 2001	:	Examiner: RODEE, Christopher D.

For: PHOTOSENSITIVE MEMBER

TRANSMITTAL OF APPEAL BRIEF

Commissioner for Patents
Washington, DC 20231

Sir:

Submitted herewith in triplicate is Appellant(s) Appeal Brief in support of the Notice of Appeal filed December 4, 2002. Please charge the Appeal Brief fee of $320.00 to Deposit Account 500417.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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APPEAL BRIEF

Commissioner for Patents
Washington, DC 20231

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal of the final rejection of claims 1 through 3, filed April 3, 2001.

I. REAL PARTY IN INTEREST

The real party in interest is MINOLTA CO., LTD.

II. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any related appeals and interferences.

III. STATUS OF CLAIMS

Claims 13-21 and 31-42 are pending in this application, of which claims 18, 19, 36 and 37 have been canceled. Claims 13-17, 20, 21, 31-35 and 38-42 stand finally rejected. It is from the final rejection of claims 13-17, 20, 21, 31-35 and 38-42 that this Appeal has been taken.

IV. STATUS OF AMENDMENTS

An Amendment Under 37 C.F.R. 1.116 was filed on November 4, 2002, canceling claims 18, 19, 36 and 37, amending independent claim 13 to include the limitation of claim 19, amending independent claim 34 to include the limitation of claim 37, and to make changes in the specification. In the Advisory Action of November 12, 2002, the Examiner advised that the proposed amendments raise the issue of new matter (as to the changes made in the specification), but indicated that the amendments to claims 13 and 34 would be entered if submitted separately from the specification amendments. However, the Examiner further advised that amended claims 13 and 34 would still not be allowable.

The previously proposed amendments to claims 13 and 34, and the cancellation of claims 18, 19, 36 and 37 are submitted currently with the filing of this Brief. Consequently, it is presumed that the amendments have been entered for purpose of appeal and that claims 13-17, 20, 21, 31-35 and 38-42 stand finally rejected on the basis of, and for the reasons set forth in the final office action dated June 4, 2002, including the Examiner comments in the Advisory Action of November 12, 2002.

V. SUMMARY OF THE INVENTION

The present invention addresses and solves the problems attendant in providing a protective layer over a photosensitive layer of a photosensitive member. The protective layer is to prevent damage to the photosensitive layer and to improve durability. As photosensitive members are repeatedly subjected to charging and to image exposure, the protective layer needs to have low insularization to prevent accumulation of charge in an interior portion or surface of the protective layer. When the electrical conductivity is excessively high, charge migration occurs in a horizontal direction and causes the production of images that are not sharp. Conversely, when conductivity is too low, charge accumulates and causes image fogging. Therefore, the conductivity of the protective layer must be controlled to a suitable value, and the conductivity must remain stable in the presence of external influences such as temperature and humidity and the like. The protective layer must also satisfy mechanical strength requirements in order to prevent being damaged from a toner cleaning blade or the like.

Thus, in the present invention, the exterior surface layer contains tantalum doped tin oxide, as conductive particles dispersed in resin. Tantalum doped tin oxide is nontoxic and stable, and has exceptional photosensitivity characteristics, helping to prevent the exterior surface layer from interfering with the production of sharp images.

Claim 34 is presented below with elements read on the specification and drawings, as suggested in MPEP § 1206.

A photosensitive member comprising (FIG. 4):

a substrate (1, page 35, line 2);

a charge generating layer (4, page 35, lines 2-4) being formed on the substrate and containing an organic charge generating material;

a charge transporting layer (5, page 35, lines 2-4) being formed on the charge generating layer and containing a charge transporting material and a first binder resin; and

an exterior surface layer (6, page 35, lines 4-5) being formed on the charge transporting layer and containing tantalum doped tin oxide having the mean particle size of 0.3 to 1.0 micrometers (page 8, lines 14-18) and a second binder resin.

VI. ISSUE

A. The Rejections

Claims 13-21 and 31-33 are rejected under 35 U.S.C. §103(a) as being unpatentable over Rokutanzono [et al.] in view of Bergmann [et al.].

Claims 34-42 are rejected under 35 U.S.C. §103(a) as being unpatentable over Rokutanzono [et al.] in view of Bergmann [et al.], as applied to claims 13-21 and 31-33, and further in view of *Organic Photoreceptors for Imaging Systems*, to Borshenberger, pp. 25-35 and 289-296.

B. The issue which arises in this Appeal and requires resolution by the Honorable Board of Patent Appeals and Interferences (Board) is whether claims 13-21 and 31-33 are unpatentable under 35 U.S.C. § 103 for obviousness predicated upon Rokutanzono [et al.] in view of Bergmann [et al.], and whether claims 34-42 are unpatentable under 35 U.S.C. § 103 for obviousness predicated upon Rokutanzono [et al.] in view of Bergmann [et al.], as applied to claims 13-21 and 31-33, and further in view of *Organic Photoreceptors for Imaging Systems*, to Borshenberger, pp. 25-35 and 289-296

VII. GROUPING OF CLAIMS

The appealed claims stand or fall together as a group depending upon whether independent claims 13 and 34 are patentable.

VIII. THE ARGUMENT

The photosensitive member defined in independent claim 13 comprises:

> a photosensitive layer; and
> an exterior surface layer containing ***tantalum doped tin oxide having the mean particle size of 0.3 to 1.0 micro-meters***. (emphasis added)

The photosensitive member defined in independent claim 34 comprises:

> a substrate;
> a charge generating layer being formed on the substrate and containing an organic charge generating material;
> a charge transporting layer being formed on the charge generating layer and containing a charge transporting material and a first binder resin; and
> an exterior surface layer being formed on the charge transporting layer and containing ***tantalum doped tin oxide having the mean particle size of 0.3 to 1.0 micro-meters*** and a second binder resin. (emphasis added)

The Examiner did not make out a Prima Facie Case:

Appellants submit that the Examiner did not establish a ***prima facie*** basis to deny patentability to the claimed invention under 35 U.S.C. § 103. More specifically, the Examiner's proposed motivation for modifying Rokutanzono [et al.] with the teaching of Bergmann [et al.] does not withstand scrutiny.

The differences between the claimed method and the applied prior art:

There is a fundamental difference between the claimed exterior surface layer of the present invention and the surface layer of Rokutanzono [et al.] that underscores the impropriety of the Examiner's attempt to modify it with the disclosure of Bergmann [et al.].

The ***tantalum doped tin oxide*** used in the present invention ***has a mean particle size of 0.3 to 1.0 micrometers***, as recited in claims 13 and 34. When the particle size is too large, cleaning characteristics are reduced (see page 8, lines 14-18 of the present application). When particle size is too small, it becomes difficult to achieve uniform dispersion of the particle within the layer, leading to inadequate cleaning.

Rokutanzono [et al.]

In Rokutanzono [et al.], the surface protective layer contains ***antimony doped tin oxide*** particles and the average size of these particles is 0.3 micrometers or less, preferable 0.1 micrometers or less (column 3, lines 3-7) considering the transparency of the protective layer. The object of Rokutanzono is to provide an electrophotographic photoconductor that contains a protective layer having high transparency. However, when the average size of ***antimony doped tin oxide*** particles is larger than 0.3 micrometers, the object cannot be sustained.

Bergman [et al.]

Bergmann [et al.] disclose transparent coatings prepared from ***tantalum doped tin oxide*** and the size of the electroconductive powders or particles range in size from about 0.05 to about 15 micrometers (column 4, lines 5-7). However, Bergmann [et al.] do not disclose or suggest that ***tantalum doped tin oxide*** is to used in forming a surface protective layer for an electrophotographic photoconductor. In this regard, Bergmann [et al.] disclose that the

electroconductive coatings are to be employed to prevent build-up of electrostatic charges when manufacturing electronic components or parts, such as computer chips, because these parts need to be protected from electrostatic discharge. Thus, Bergmann [et al.] envision the use of electroconductive coatings for floors, walls and furniture in "clean rooms" where electronic parts are produced (see column 1, line 63 to column 2, line 7). Bergmann [et al.] also contemplate the powders of the invention to be employed in coatings for recyclable containers and other materials, e.g., packaging. Thin films or coatings containing electroconductive powders can also be used within polymer films or fibers, magnetic recording tapes, on work surfaces and in paints to impart electroconductive properties (see column 2, lines 18-24). None of these suggested uses for the disclosed powders is for a protective layer for a electrophotographic photoconductor. Furthermore, while Bergmann [et al.] does disclose that the electroconductive powders or particles range in size from about 0.05 to about 15 micrometers (column 4, lines 5-7), there is no disclosure or suggestion that the mean particle size of ***tantalum doped tin oxide*** is 0.3 to 1.0 micrometers.

Consequently, a person of ordinary skill in the art would have no motive to use the powders of Bergmann [et al.] in a protective layer for a electrophotographic photoconductor, as such person would use the powders of Bergmann [et al.] only in the manners that are specifically disclosed and suggested in this reference. Furthermore, such a person of ordinary skill in the art would certainly not have any motive to substitute tantalum doped tin oxide powders or particles that are disclosed to range in size from about 0.05 to about 15 micrometers, for the antimony doped tin oxide particles of Bergmann [et al.], having an average size of particles of 0.3 micrometers or less, preferable 0.1 micrometers or less, and somehow result in an exterior

surface layer containing tantalum doped tin oxide having a mean particle size of 0.3 to 1.0 micrometers

The Examiner's proposed modification is based upon improper hindsight reconstruction of the claimed invention

Appellants submit that the Examiner's suggestion to modify the protective layer of Rokutanzono [et al.] by substituting the tantalum doped tin oxide powders or particles of Bergmann [et al.] that range in size from about 0.05 to about 15 micrometers for the antimony doped tin oxide having an average size of 0.3 micrometers or less, preferable 0.1 micrometers or less (column 3, lines 3-7), taking into consideration the fact that Bergmann [et al.] never contemplate the use of tantalum doped tin oxide power in a protective layer for a electrophotographic photoconductor, and to somehow result in an exterior surface layer containing tantalum doped tin oxide having the mean particle size of 0.3 to 1.0 micrometers is based upon improper hindsight reconstruction of the claimed invention. Only the present application, at page 19, discloses using tantalum-doped tin oxide in the protective overcoat layer (for a photosensitive member) of Example 1. Thus, it should be clear that the only suggestion of using tantalum doped tin oxide, having the mean particle size of 0.3 to 1.0 micrometers, in a surface layer of a photosensitive member is in the present application. However, Appellants' disclosure may not properly be relied upon to support the ultimate legal conclusion of obviousness under 35 U.S.C. §103. ***Panduit Corp. v. Dennison Mfg. Co., supra***. Therefore, a conclusion of obviousness is not warranted and it is urged that the rejection be withdrawn.

Conclusion

It should, therefore, be apparent that the Examiner did not establish a ***prima facie*** basis to deny patentability to the claimed invention for lack of the requisite realistic motivational element. Moreover, upon giving due consideration to the fact that the only suggestion of using tantalum doped tin oxide, having the mean particle size of 0.3 to 1.0 micrometers, in a surface layer of a photosensitive member is in the present application, the conclusion appears inescapable that one having ordinary skill in the art would **not** have found the claimed invention **as a whole** obvious within the meaning of 35 U.S.C. § 103. ***In re Piasecki***, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984).

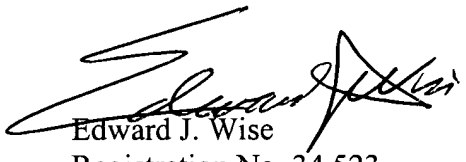
IX. PRAYER FOR RELIEF

Based upon the above arguments, Appellants submit that one having ordinary skill in the art would not have found the claimed invention as a whole obvious within the meaning of 35 U.S.C. § 103. Appellants, therefore, respectfully solicit the Honorable Board to reverse the Examiner's rejection of claims 13-21 and 31-33 under 35 U.S.C. § 103 for obviousness predicated upon Rokutanzono [et al.] in view of Bergmann [et al.], and of claims 34-32 under 35 U.S.C. § 103 for obviousness predicated upon Rokutanzono [et al.] in view of Bergmann [et al.], as applied to claims 13-21 and 31-33, and further in view of *Organic Photoreceptors for Imaging Systems*, to Borshenberger, pp. 25-35 and 289-296.

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

MCDERMOTT, WILL & EMERY



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APPENDIX

13. (Amended) A photosensitive member comprising:

a photosensitive layer; and

an exterior surface layer containing tantalum doped tin oxide having the mean particle size of 0.3 to 1.0 micro-meters.

14. The photosensitive member of claim 13,

wherein the tantalum doped tin-oxide is dispersed in a binder resin.

15. (Amended) The photosensitive member of claim 13,

wherein the tantalum doped tin oxide is a tin oxide doped with 0.1 to 10 percentage-by-weight tantalum.

16. The photosensitive member of claim 13,

wherein the tantalum doped tin oxide is a solid solution of tin oxide and tantalum.

17. The photosensitive member of claim 13,

wherein the tantalum doped tin oxide is formed by coating the surface of tin oxide with tantalum.

18. (Amended) The photosensitive member of claim 13,

wherein the tantalum doped tin oxide has a mean particle size of less than 2 micro-meters.

19. (Amended The photosensitive member of claim 18,

wherein the tantalum doped tin oxide has the mean particle size of 0.3 to 1.0 micro-meters.

20. (Twice Amended) The photosensitive member of claim 13,

wherein a content of the tantalum doped tin oxide is 5 to 70 percentage-by-weight of the total of the exterior surface layer.

21. (Amended) The photosensitive member of claim 13,

wherein the exterior surface layer has a thickness of 7 micro-meters or less.

31. The photosensitive member of claim 21,

wherein the exterior surface layer has the thickness of 1 to 5 micro-meters.

32. The photosensitive member of claim 20,

wherein the content of the tantalum doped tin oxide is 7 to 40 percentage-by-weight.

33. The photosensitive member of claim 13,

wherein the tantalum doped tin oxide is surface-treated by a silane coupling agent or a titanium coupling agent.

34. (Twice Amended) A photosensitive member comprising:

a substrate;

a charge generating layer being formed on the substrate and containing an organic charge generating material;

a charge transporting layer being formed on the charge generating layer and containing a charge transporting material and a first binder resin; and

an exterior surface layer being formed on the charge transporting layer and containing tantalum doped tin oxide having the mean particle size of 0.3 to 1.0 micro-meters and a second binder resin.

35. The photosensitive member of claim 34,

wherein the tantalum doped tin oxide is a tin oxide doped with 0.1 to 10 percentage-by-weight tantalum.

36. The photosensitive member of claim 34,

wherein the tantalum doped tin oxide has a mean particle size of less than 2 micro-meters.

37. The photosensitive member of claim 36,

wherein the tantalum doped tin oxide has the mean particle size of 0.3 to 1.0 micro-meters.

38. The photosensitive member of claim 34,

wherein a content of the tantalum doped tin oxide is 5 to 70 percentage-by-weight of the total of the exterior surface layer.

39. The photosensitive member of claim 38,

wherein the content of the tantalum doped tin oxide is 7 to 40 percentage-by-weight.

40. The photosensitive member of claim 34,

wherein the exterior surface layer has a thickness of 7 micro-meters or less.

41. The photosensitive member of claim 40,

wherein the exterior surface layer has the thickness of 1 to 5 micro-meters.

42. The photosensitive member of claim 34,

wherein the tantalum doped tin oxide is surface-treated by a silane coupling agent or a titanium coupling agent.